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What Drives Prices in Financial Markets?

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by

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Introduction

Within financial markets, participants rely on various factors to drive their buying and selling decisions. Many speculators in the market depend on fundamental factors, such as news or broad economic information, to motivate their decisions. Other investors allow their personal biases and psychological factors to influence their choices. Some prefer to study historical price trends and patterns. Many other market participants conduct intrinsic value analysis to seek mispricing. No matter their motivation, investor's decisions have a monumental effect on stock valuation and price fluctuation in the market.

The question of what drives prices in financial markets has been hotly debated amongst financial economists for decades. It is proven that speculator's decisions have a strong influence on market prices, but what is the biggest driver of these decisions and the price fluctuations that result? Are fundamental factors the most influential to investors? Can psychology sway decision-making and valuation over time? Is technical trading prevalent enough to have a large effect on prices? Do these conclusions prove that markets are efficient or inefficient in valuing securities?

In order to answer these questions, textual data found within Bloomberg Wrap Reports was utilized to create a data set. These reports, released at the end of every trading day, provide strong insight regarding market activity drivers and subsequent price fluctuations. After research and analysis was conducted, it became apparent that there was only one strong driver of financial market prices within the chosen seven-month timeline.

The Efficient Market Hypothesis

The Efficient Market Hypothesis (EMH) is a hypothesis in financial economics stating that prices of securities are immediately influenced by all available news and information in the market. The explanation behind this hypothesis is that when information arises, the news is quickly spread and incorporated into security's prices without delay. Examples of information include company earnings and investment strategies, as well as macroeconomic considerations, such as overall economic activity and interest rates.

Eugene Fama, one of the pioneers of the EMH, said the following in 1970:

> "An 'efficient' market is defined as a market where there are large numbers of rational, profit 'maximisers' actively competing, with each trying to predict future market values of individual securities, and where important current information is almost freely available to all participants. In an efficient market, competition among the many intelligent participants leads to a situation where, at any point in time, actual prices of individual securities already reflect the effects of information based both on events that have already occurred and on events which, as of now, the market expects to take place in the future. In other words, in an efficient market at any point in time the actual price of a security will be a good estimate of its intrinsic value."[1]

According to Fama, efficient markets are markets where public news and information are immediately incorporated into stock prices. Once this information is released to the public, market participant's consequent buying and selling decisions push stock prices to their "equilibrium" level. This equilibrium is said to be a good and fair estimate of the true value of

[1] Fama, E. F. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance, 25,* 383-417.

the security because it "fully reflects" all available information.[2] Under this hypothesis, news and information are the biggest drivers of stock price fluctuations and they contribute to efficient pricing of securities in the market.

Unfortunately for investors, efficient markets are said to be impossible to beat. Due to investor's imperfect knowledge of the future, there is no true way to predict what news will be released in the coming days, months, or years. Furthermore, is it impossible to understand exactly how investors will perceive the new information, so it is difficult to determine how price levels in the market will behave as a result of said news release. Aside from instances of insider trading, there is no legal way to act on future information because it is not yet known by the public.

In other attempts to outperform the market and realize profits, speculators also employ technical and fundamental analysis. Burton Malkiel, an economist and proponent of passive investing practices, defended that neither type of analysis would allow an investor to achieve greater returns and outperform the financial market, due to the fact that markets are so heavily based on fundamentals.[3] In 2005, Malkiel also went on to research and prove that actively managed funds underperformed index funds by over 200 basis points in some cases, despite their attempts to outperform the market.[4] Overall, the Efficient Market Hypothesis defends the argument that investors should be rational in their trading practices while relying on news and

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[2] Fama, E. F. (1970). Efficient Capital Markets: A Review of Theory and Empirical Work. *The Journal of Finance*, *25*, 383-417.

[3] Malkiel, B. G. (2003). The Efficient Market Hypothesis and Its Critics. *The Journal of Economic Perspectives, 17,* 59-82.

[4] Malkiel, B. G. (2005). Reflections on the Efficient Market Hypothesis: 30 Years Later. *The Financial Review, 40,* 1-9.

public information because there is no way to outperform the financial market. In this case, rational trading means that one should heavily consider fundamentals when investing because very little else will help them to successfully make informed decisions.

All things considered, the Efficient Market Hypothesis says the following:

1. Fundamentals, information, and news are the biggest drivers of stock price fluctuations in the financial market.
2. Markets immediately incorporate news into stock prices because investors make buying and selling decisions in reaction to that information.
3. Financial markets are efficient in valuing securities because the informed decisions of market participants drive prices to equilibrium.
4. Financial markets are impossible to beat because there is no way to predict future news releases or the reaction that will result. Additionally, neither technical nor fundamental analysis will allow an investor to outperform the market.
5. Some economists argue that passive investing strategies are the most practical due to the strength of the Efficient Market Hypothesis.

Although the Efficient Market Hypothesis is heavily supported amongst economists, the Behavioral Finance View is another theory that attempts to pinpoint the cause of everchanging fluctuations of financial market price levels. Unlike the Efficient Market Hypothesis, the Behavioral Finance View considers the role of investor psychology and emotions when making decisions in the market.

The Behavioral Finance View

The Behavioral Finance View (BFV) considers the effect of investor emotions and psychology on their trading practices, as well as the subsequent reaction of the financial market.

Unlike the Efficient Market Hypothesis, which credits fundamentals as the sole price driver in the efficient financial market, the Behavioral Finance View says that investors also consider personal biases and psychological factors when making trading decisions. The Behavioral Finance View explains that psychology and biases have just as much of an effect on financial market price levels as fundamental factors would under the Efficient Market Hypothesis. "The behavioral approaches suggests that other factors, such as swings in market sentiment between optimism and pessimism, can also generate substantial market movement."[5] Decisions that consider more than fundamental factors and public information are considered irrational. As a result of this irrationality, markets are said to be inefficient and imperfect under the Behavioral Finance View.[6]

Behavioral economists argue that markets are imperfect because people often stray from rational decisions. They believe this behavior creates market breakdowns and mispricing, since investors are making decisions that are not based on true market fundamentals and important

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[5] Bird, G., Du, W., & Willett, T. (2017). Behavioral Finance and Efficient Markets: What Does the Euro Crisis Tell Us? *Open Economics Review, 28*, 273-295.

[6] Hilsenrath, J. E. (2004, October 18) As Two Economists Debate Markets, The Tide Shifts. *The Wall Street Journal.*

information.[7] These irrational decisions can be driven by various psychological factors, including overconfidence, familiarity bias, hindsight bias, naïve diversification, and belief perseverance.[8]

1. Overconfidence: Speculators can become overconfident when they make many successful investments over a short period of time. This sense of overconfidence can cause investors to make uninformed decisions in the market.
2. Familiarity Bias: This type of bias stems from an investor's preference for securities that they are familiar with. Purchasing decisions driven by this type of bias can create false demand and eventual mispricing within the market because they are not supported by any definitive information.
3. Hindsight Bias: This type of bias occurs when an investor reflects on a past event with the feeling that they forecasted the result. This feeling of predictive power causes one to develop the belief that they can foresee future events that they have imperfect knowledge of. Hindsight bias can cause an investor to irrationally make investments based on psychological factors rather than fundamentals.
4. Naïve Diversification: When investing, some speculators attempt to diversify their portfolio by purchasing securities that they believe will help them to broaden their range of investments. Often, these investments are not well supported.
5. Belief Perseverance: When investors speculate, they sometimes find it hard to make selling decisions even if new information or fundamentals refute the reason why they

[7] Hilsenrath, J. E. (2004, October 18) As Two Economists Debate Markets, The Tide Shifts. *The Wall Street Journal.*

[8] Hendricks, C. (2015, February 5). Types of Behavioral Finance. Retrieved from https://www.financialsymmetry.com/types-behavioral-finance/

historically purchased one of their securities. This means that it is common for investors hold onto stocks that are not financially sound.

When investors make irrational decisions due to the factors listed above, prices are driven away from their fair value and the market is proven to be inefficient.

In summary, the Behavioral Finance View says the following:

1. Psychology, personal biases, and opinions of investors have just as much of an effect on market fluctuations as fundamentals, information, and news would under the Efficient Market Hypothesis.
2. The Behavioral Finance View says that consideration of more than just fundamentals when making trading decisions leads financial markets to become imperfect.
3. Different psychological factors that drive investors to act irrationally include overconfidence, familiarity bias, hindsight bias, naïve diversification, and belief perseverance. Every day, investors make decisions that are driven by these factors rather than fundamentals. Due to this irrationality, the market experiences market breakdowns and mispricing, which ultimately leads to inefficiency.

Along with the Efficient Market Hypothesis and the Behavioral Finance View, there is one more trading phenomenon that will be considered when researching factors that drive prices in financial markets. Investors who conduct technical and fundamental analysis, including momentum and non-momentum trading, consider more than just fundamentals or psychology when making buying and selling decisions.

Technical Trading

Technical and fundamental analysis are two types of trading strategies utilized in the financial market. Technical analysis, the basis of technical trading, is the study of past stock prices to predict future prices. This strategy analyzes past market patterns to estimate what will take place in the future. The three principles of technical analysis are explained below. [9]

1. Market Action Discounts Everything: Fundamental factors in the market are automatically valued into the price of securities. For this reason, technical traders do not consider "obsolete" fundamentals when making decisions.
2. Prices Move in Trends: Within technical analysis, the prices of securities tend to move in trends and typically stay within that trend until the trend line breaks. After a trend has been created within a security, price movement observed in the future is likely to stay in the same direction as the trend rather than against it. This is the reasoning behind the saying "trend is your friend" within technical trading.
3. History Repeats Itself: Many patterns observed by technical traders illustrate price fluctuations that are repeated in a pattern. These repetitive patterns are utilized by technical traders to buy or sell when they expect the pattern to make certain movements.

There are many technical traders who employ these price-observant tactics on a regular basis, including momentum and non-momentum traders. Momentum trading is the act of buying or selling securities based on strong recent price trends. For instance, if a stock's price were to increase by 20% within a week, momentum traders would likely purchase that security in hopes

[9] What Is Technical Analysis? (n.d.). Retrieved from https://www.fidelity.com/learning-center/trading-investing/technical-analysis/introduction-technical-analysis/what-is-technical-analysis

that the security's valuation would continue an upward trend. Once the security's trend line is broken, the investor would sell the security, realize capital gains, and search for another investment opportunity that is experiencing the same phenomenon. Non-momentum trading, on the other hand, takes advantage of different price anomalies, such as the Holiday effect, the January effect, and the end-of-the-year effect. These calendar anomalies consist of unsupported but consistent increases or decreases in market fluctuation that are observed year after year. When these anomalies occur, non-momentum trading takes place to reap the benefits of the associated gains.[10]

Technical analysis is very prevalent in the market today. "The use of technical trading strategies is widespread, with many participants relying on them, at least in part, to make their trading decisions."[11] Interestingly, most traders tend to prefer technical analysis over fundamental analysis when technical trading.[12]

Fundamental analysis is the study of a company's financial information to determine the security's intrinsic value. This intrinsic value calculation is then compared to the quoted price of the stock and analyzed for mispricing. Then, the stock is determined to be overvalued, undervalued, or correctly valued.[13] This type of analysis helps many investors to guide their

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[10] Frydman, R., & Goldberg, M. D. (2011). *Beyond Mechanical Markets: Asset Price Swings, Risk, and the Role of the State*. Princeton, NJ: Princeton University Press.

[11] Ibid.

[12] Reiter, D. (2020, April 21). Why Do Most Traders Prefer Technical Analysis Over Fundamental Analysis? Retrieved from https://digitexfutures.com/blog/most-traders-prefer-technical-analysis/

[13] What Is Fundamental Analysis? (n.d.). Retrieved from https://www.fidelity.com/learning-center/trading-investing/fundamental-analysis/introduction-to-fundamental-analysis-video

trading decisions. When determining the intrinsic value of a stock, fundamental analysts are likely to consider the following: company earnings, earnings per share (EPS), price-to-earnings ratio (P/E), projected earnings growth (PEG), price-to-sales ratio (P/S), price-to-book ratio (P/B), dividend payout ratio, dividend yield, and return on equity (ROE).[14]

1. Company Earnings: It is important to know how much the company is making to decide whether the company is worthy of investing in.
2. Earnings per Share (EPS): This metric tells investors how much of the company's earnings are assigned to each share of stock.
3. Projected Earnings Growth (PEG): This metric estimates the stock's one-year earnings growth rate.
4. Price-to-Sales Ratio (P/S): This metric values the company's stock in relation to its revenues.
5. Price-to-Book Ratio (P/B): This metric compares the stock's book value to its market value.
6. Dividend Payout Ratio: This metric compares stockholder payouts to the company's total net income.
7. Dividend Yield: This metric compares yearly dividend payouts to share price.
8. Return on Equity (ROE): This metric compares company net income to shareholder equity.

[14] Little, K. (2020, February 13). The Top Tools for Fundamental Analysis. Retrieved from https://www.thebalance.com/tools-of-fundamental-analysis-3140772

When considered as a whole, the above metrics allow an investor to determine the intrinsic value of a security that they are seeking to analyze for mispricing. If they find that the security is overpriced or underpriced using this analysis, they could then act on any opportunities for profit.

Technical analysis, including momentum and non-momentum trading, as well as fundamental analysis, are both considered technical trading tactics that have the potential to drive prices in the financial market.

Three Potential Drivers of Market Prices

To summarize, there are three potential drivers of prices in the financial market that will be considered in this research.

1. The Efficient Market Hypothesis: This hypothesis says that fundamental factors, such as news, public information, and other macroeconomic activity, are the largest drivers of prices in the financial market. Under the Efficient Market Hypothesis, the financial market is considered to be efficient in setting prices.
2. The Behavioral Finance View: Under this theory, psychology and opinions are the largest drivers of prices within financial markets. Under the Behavioral Finance View, the financial market is not considered to be efficient in setting prices.
3. Technical Trading: This trading tactic, that analyzes price patterns and mispricing in the market, will also be considered when asking what drives prices in financial markets.

In order to determine which of the above drivers are most influential in markets, Bloomberg Wrap Reports were used to create a data set.

Bloomberg Wrap Reports

At the end of each trading day, Bloomberg News publishes a report highlighting important activity within the financial market. Each report summarizes the performance of various stock indices as well as major current events to determine their effect on market fluctuations. Within the reports, Bloomberg News also interviews professionals in the industry, such as fund managers, to question their opinion of the day's developments and their effect on the market. These wrap reports are written to cater to professionals within the financial world but are also utilized by amateur investors and academics alike. Full of textual data, Bloomberg Wrap Reports serve as a window into the decision-making process of those who's trading directly affects and influences prices.[15]

Unlike quantitative data sets, Bloomberg Wrap Reports are not limited to tracking the performance of only fundamental factors. Wrap Reports are unique because they also consider psychological and technical conditions that might have driven the market. Bloomberg Wrap Reports are considered the most appropriate and comprehensive source of data when asking the question at hand.

[15] Frydman, R., & Goldberg, M. D. (2011). *Beyond Mechanical Markets: Asset Price Swings, Risk, and the Role of the State*. Princeton, NJ: Princeton University Press.

Expectations

Before the research was conducted, I expected there to be an equal amount of support for the Efficient Market Hypothesis, the Behavioral Finance View, and technical trading. When learning about each of these topics, I felt as if they were all well supported and seemed realistic enough to occur frequently in practice. Furthermore, Chapter Seven of *Beyond Mechanical Markets* introduced me to the large variety of market drivers that have previously appeared in Wrap Reports. Former University of New Hampshire student Nicholas Mangee was the first use Bloomberg Wrap Report scoring and data creation to analyze market fluctuations, which was the inspiration for my research. During his study, Mangee found substantial fundamental, psychological, and technical evidence within the reports he scored,[16] solidifying my expectations.

Another expectation I developed before researching was to observe many price fluctuations due to macroeconomic activity, international trade talks, and interest rates. During the chosen timeline, the trade war with China was unfolding. Additionally, the Federal Reserve was making a series of interest rate cuts. I expected these important events to warrant substantial market movements.

[16] Frydman, R., & Goldberg, M. D. (2011). *Beyond Mechanical Markets: Asset Price Swings, Risk, and the Role of the State*. Princeton, NJ: Princeton University Press.

Materials

There were three materials necessary to conduct this research.

1. Bloomberg Wrap Reports
    a. In order to create the data set, one must have access to Bloomberg Wrap Reports for each trading day within the chosen timeline. Bloomberg Wrap Reports can be accessed using the Bloomberg Terminal or at www.Bloomberg.com.
2. *Beyond Mechanical Markets: Asset Price Swings, Risk, and the Role of the State*
    a. This book proved to be very informative while researching. As mentioned before, Bloomberg Wrap Report research has been conducted in the past and this book details those findings. *Beyond Mechanical Markets* provides examples of different fundamental, psychological, and technical factors that have appeared within past reports and is very helpful throughout the entire scoring process.
3. Bloomberg Wrap Reports Scoring Workbook (Excel)
    a. The Bloomberg Wrap Reports Scoring Workbook is necessary during the scoring process. This workbook contains columns for the following fundamental, psychological, and technical factors that are likely to appear within the Wrap Reports:

i. Date

ii. Stock Index

    1. Dow, S&P 500, NASDAQ

iii. Market Fundamentals

    1. Benchmark Valuation, Central Bank Communication, Company Variables, Currency Markets, Dividends or Earnings, Financial Institutions, Geopolitical Issues, Government or Fiscal, Housing, Inflation Rates, Interest Rates, International Trade, Macroeconomy, Oil, Rest of the World, Sales

iv. Psychology with Fundamentals

    1. Psychology with Benchmark Valuation, Psychology with Central Bank Communication, Psychology with Company Variables, Psychology with Currency Markets, Psychology with Dividends or Earnings, Psychology with Financial Institutions, Psychology with Geopolitical Issues, Psychology with Government or Fiscal, Psychology with Housing, Psychology with Inflation Rates, Psychology with Interest Rates, Psychology with International Trade, Psychology with the Macroeconomy, Psychology with Oil, Psychology with the Rest of the World, Psychology with Sales

v. Pure Psychology

vi. Technical Trading

    1. Momentum
    2. Non-Momentum

Procedure

Before beginning the research, I learned about the Efficient Market Hypothesis, the Behavioral Finance View, and technical trading. By having a general understanding of these topics, I was able to draw connections between Wrap Report contents and the market drivers in question while I was scoring.

Next, I read Chapter Seven of *Beyond Mechanical Markets: Asset Price Swings, Risk, and the Role of the State.* By reading this chapter, I became familiar with the different fundamental, psychological, and technical factors that have historically appeared within the Bloomberg Wrap Reports. Figures 1, 2, and 3, found in the Appendix, outline these factors.

After becoming familiar with the factors that were likely to appear within the reports, I chose a timeline to research. The timeline I chose, spanning from June 1, 2019 to December 31, 2019, contained many different market fluctuations and I was interested to see what conclusions the research would yield.

Once the timeline was finalized, I downloaded the appropriate Bloomberg Wrap Reports.

The next step was to learn how to score the reports. Within the Bloomberg Wrap Report Scoring Workbook, rows were labelled by date and columns were labelled by fundamental, psychological, and technical factors. If I found that a certain factor was noted in the Wrap Report for a given date, I typed a "1" into the appropriate cell to indicate the factor's appearance on that day.

Next, I practiced my scoring technique to ensure that I was extracting as much fruitful data as possible.

Once I was well practiced, I continued scoring until I had created data for all 133 Bloomberg Wrap Reports within my chosen timeline.

Once the reports were scored, I calculated the frequency in which each factor appeared in the data. This calculation, called factor frequency, was completed as follows:

$$Factor\ Frequency = \frac{\#\ of\ Days\ the\ Factor\ Drove\ the\ Market}{Length\ of\ the\ Timeline\ (in\ Days)}\ x\ 100\%$$

Much like Mangee, I found that this formula was very helpful when analyzing the data and allowed me to compare each factor's prevalence.

Once I calculated the frequency of each factor, I was able to easily determine which were the biggest market drivers during the chosen timeline. Furthermore, I was able to use these conclusions to decide whether the financial market is efficient or inefficient, based on the assumptions posed in the Efficient Market Hypothesis and the Behavioral Finance View.

Results

Using factor frequency results, the below factors are sorted from most frequent to least frequent within the Bloomberg Wrap Reports published between June 1. 2019 and December 31, 2019.

1. Fundamentals with International Trade
2. Fundamentals with Interest Rates
3. Fundamentals with Macroeconomic Activity
4. Fundamentals with Dividends or Earnings
5. Fundamentals with Central Bank Communication
6. Fundamentals with the Rest of the World
7. Fundamentals with Government or Fiscal
8. Fundamentals with Company Variables
9. Psychology with Macroeconomic Activity
10. Fundamentals with Currency Markets
11. Fundamentals with Inflation Rates
12. Technical Momentum Trading
13. Psychology with Central Bank
14. Psychology with Interest Rates
15. Psychology with International Trade
16. Pure Psychology

The below factors did not appear Bloomberg Wrap Reports during the chosen timeline and were not considered to be price drivers:

- Fundamentals with Benchmark Valuation
- Fundamentals with Financial Institutions
- Fundamentals with Geopolitical Issues
- Fundamentals with Housing
- Fundamentals with Oil
- Fundamentals with Sales
- Psychology with Benchmark Valuation
- Psychology with Company Variables
- Psychology with Currency Markets
- Psychology with Dividends or Earnings
- Psychology with Financial Institutions
- Psychology with Geopolitical Issues
- Psychology with Government or Fiscal
- Psychology with Housing
- Psychology with Inflation Rates
- Psychology with Oil
- Psychology with The Rest of the World
- Psychology with Sales
- Technical Non-Momentum Trading

See Appendix Figure 4 for more specific details.

Discussion

Based on the data in Figure 4, it is apparent that fundamental factors were the most influential price drivers within in the financial market throughout the chosen timeline. Only six of these factors were noted with a factor frequency of 10% or more. Interestingly, the top six drivers were all fundamental factors. These factors included fundamentals with international trade, fundamentals with interest rates, fundamentals with macroeconomic activity, fundamentals with dividends or earnings, fundamentals with central bank communication, and fundamentals with the rest of the world.

Fundamentals with international trade, which had a 55% factor frequency, was the most prevalent driver of prices during the chosen timeline. Trade talks between the US and China were discussed quite often within Wrap Reports and influenced the market more than any other factor. For instance, the financial market was driven by this fundamental on August 2, 2019 and was evidenced by the following Bloomberg Wrap Report excerpt: "U.S. stocks suffered the worst week of 2019 as investors fretted over Donald Trump's escalation of his trade war with China."[17] This report stated that the market suffered a bad week due to the escalation of the trade war, which was scored as a fundamental reaction to international trade.

Fundamentals with interest rates appeared with a factor frequency of 24%. During the second half of 2019, there were several Federal Reserve FOMC meetings and rate cuts, which caused activity in the financial market. The Bloomberg Wrap Report published on June 20, 2019 said the following: "U.S. stocks rose to a record, while sovereign bonds extended gains and the

[17] Jensen, R., & Hajric, V. (2019). *Stocks Suffer Worst Week of Year on Trade: Markets Wrap.* Bloomberg News.

dollar slumped after central banks around the world continued a shift toward easier monetary policy."[18] In short, this quote says that stocks reached high price levels as central banks, such as the Fed, loosened monetary policy by cutting interest rates. This was scored as a fundamental reaction to interest rates.

Fundamentals with macroeconomic activity was noted with a factor frequency of 22%. Both trade talks and interest rate cuts influence macroeconomic activity, so it is not surprising that these fundamentals were a main influencer of market prices. On September 6, 2019, Bloomberg News said the following about macroeconomic activity and the labor market: "Stocks rose earlier after hiring data signaled a strong labor market that isn't too strong to deter further easing."[19] In summary, this quote says that stock prices rose due to the strong labor market, which is an important macroeconomic factor. This excerpt was scored as a fundamental reaction to macroeconomic activity on this day.

Fundamentals with dividends or earnings had a factor frequency of 16%. Company earnings are often indicative of economic slowdown and trade strife due to their effects on company's bottom lines. As mentioned before, there were many current events pertaining to the macroeconomy and international trade that unfolded at the end of 2019. If investors were to note that company earnings were drastically decreasing due to these factors, they are likely to reorganize their portfolio which would influence fluctuations in the market.

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[18] Hajric, V., & Ponczek, S. (2019). *Stocks Rise to Record As 10-Year Yield Hits 2%: Markets Wrap*. Bloomberg News.

[19] Jensen, R., & Hajric, V. (2019). *Stocks Cap Weekly Gain After Powell, Jobs Data: Markets Wrap.* Bloomberg News.

Fundamentals with central bank communication, with a factor frequency of 12%, was often noted due to Federal Reserve rate cuts during this timeline and was also considered a driver of prices.

With a factor frequency of 10%, fundamentals with the rest of the world was the sixth most prevalent factor to drive the market. The reoccurrence of this fundamental was credited to trade tensions between the US and China, due to their influence on the entire world.

There were only five psychological factors that, within this timeline, drove financial market prices. The most influential psychological factor was psychology with macroeconomic activity, which had a factor frequency of only 4%. An example of psychology with macroeconomic activity was highlighted within the October 1, 2019 Wrap Report and said the following: “Stocks slid and Treasuries rose after a gauge of U.S. manufacturing posted the weakest reading since the end of the last recession, fueling fears of an impending global slowdown and boosting haven assets.”[20] This quote tells readers that stocks slid due to fear of a global shutdown. As a result, psychology with macroeconomic activity was scored on this day.

Following psychology with macroeconomic activity was psychology with the central bank, psychology with interest rates, psychology with international trade, and pure psychology. Each of these factors appeared with a frequency of 1%.

Momentum trading was the only type of technical trading that was apparent over the course of this research, appearing with a 2% factor frequency. On December 19, 2019, Bloomberg said the following pertaining to momentum trading: “U.S. stocks bounced back to

[20] Jensen, R., & Ponczek, S. (2019). *Stocks Fall Most Since August on Weak Factory Data: Markets Wrap*. Bloomberg News.

claim fresh records as investors chased gains that have added more than $5 trillion to valuations this year."[21] When investors chase gains, this is considered momentum trading and it was scored as such. Non-momentum trading did not drive market fluctuations within this seven-month timeline.

Before the research was conducted, there were two expectations:

1. There will be equal representation of fundamental, psychological, and technical factors due to their theoretical support.
2. Talks of macroeconomic activity, international trade, and interest rates will be prevalent within the Bloomberg Wrap Reports.

As proven within the research, Expectation 1 was not met. Within the timeline in question, there were many current events and news releases that fueled fundamental decisions in the financial market and had a large influence on prices. For this reason, fundamental factors appeared within Bloomberg Wrap Reports more often than psychology and technical trading.

Due to the ongoing current events mentioned above, Expectation 2 was met. During the beginning of this process, international trade talks and interest rate cuts were already underway and continued throughout the end of 2019.

[21] Herron, J., & Ballentine, C. (2019). U.S. Stocks Resume Record Setting Year-End Rally: Markets Wrap. Bloomberg News

Conclusions

After analyzing the data, I confidently concluded that fundamental factors were the largest drivers of prices in the financial market during the chosen timeline. Due to the factor frequency of fundamentals compared to psychological and technical factors within the reports, it was apparent that fundamentals had a greater influence on market prices.

Due to the support of fundamental factors that the Bloomberg Wrap Reports provided, I also concluded that the Efficient Market Hypothesis holds true in practice. As mentioned before, EMH says that fundamental factors, such as news and information, have the greatest effect on buying and selling decisions in the financial market. EMH also defends that financial markets are efficient in valuing securities, due to the immediate nature of the market to price assets based on fundamental factors. Finally, EMH also mentions that financial markets are impossible to beat and that a passive investing strategy is more advantageous in the market. Because the Efficient Market Hypothesis was so well supported during this research, the conflicting Behavioral Finance View was refuted. Additionally, technical trading was not considered prevalent enough to influence market prices.

All things considered, this research concluded the following:

1. Fundamental factors, such as news and information, drive prices in financial markets.
2. Markets are efficient in setting the prices of listed securities.
3. Financial markets are impossible to beat.
4. Trading based on psychological factors and technical trading do not drive prices in financial markets.

Follow Up

Although expectations predicted equal support of fundamentals, psychology, and technical trading within the Bloomberg Wrap Reports, my research concluded that the Efficient Market Hypothesis and it's stipulations are supported in practice. Throughout the entire research process, the Wrap Reports showed a glaring preference for fundamental factors as market drivers. This was shocking, especially because past research and scoring of these reports displayed more representation of psychological and technical factors as market drivers.

Listed below are a few discrepancies that may explain why my conclusions differed from those of Nicholas Mangee and others who have conducted this research in the past. Mangee's data can be found in Figure 5 for reference.

1. The Bloomberg Wrap Reports are written differently now than they were in prior years. The Wrap Reports that are published today are shorter than the ones that past researchers have utilized, meaning that the current contents of reports may be limited and less inclusive.
2. There is large number of Bloomberg news reporters who contribute to these reports. Some contributors may consider certain factors important while others do not. For this reason, reports may lack consistency and equal representation of fundamentals, psychology, and technical trading as drivers of market price.
3. The timeline I chose to study was very short. This seven-month period was packed with current events pertaining to government policies, as well as Federal Reserve rate cuts and other fundamental macroeconomic considerations. Past researchers have studied much longer timelines, sometimes spanning many business cycles. Within longer timelines, a

greater number of current events take place, meaning that their data is likely to be more inclusive and diverse.

4. All researchers conduct their work differently. Although the scoring criteria was well described within *Beyond Mechanical Markets,* everyone has a different interpretation of the reports that they read. This may lead to differences in scoring from person to person.

Although my conclusions did not exactly align with those of past researchers, it is important to note that the financial market is extremely dynamic and everchanging. Because of this, it is unlikely for any two data sets to draw the same conclusions. Many simultaneous current events unfolded during the chosen timeline, each with their own unique economic consequences. Overall, I feel as if my data set was a complete and accurate representation of the market fluctuations that took place and I am confident in my conclusion that fundamentals were the greatest drivers of the financial market during the second half of 2019.

Appendix

Figure 1: Fundamental Factors Influencing Daily Stock Prices

Category	News topic	Category	News topic
Economy	GDP	Housing	Housing starts
	GDP growth rate		Home sales
	Index of leading economic indicators		Foreclosures
	Industrial production		Housing slump
	Productivity		Real estate prices
	Consumer income		Mortgage rates
	Service sector		Commercial property value
	Employment (nonfarm)		
	Unemployment rate		
	Jobless claims		
	Job creation		
	Manufacturing index		
	Factory orders		
	Durables		
	Nondurables		
Interest rates	Fed funds	Oil	Crude oil prices
	Discount rate		OPEC oil supply
	Treasury notes yield		
	Treasury bills yield		
	Treasury bonds yield		
Inflation	Producer price index	Currency markets	Value of dollar
	Consumer price index		Value of foreign currency
	Manufacturing price index		Introduction of euro
	Wages		
Earnings	Earnings and profits	Sales	Revenues
			Retail sales
			Auto sales
Gap/valuation	Distance from historical levels	Trade	Agreements (NAFTA, GATT)
	Overvalued		Tariffs
	Undervalued		Quotas
			Subsidies
			Current account deficit
			Current account surplus
Company variables	Bankruptcy	Government	Fiscal policy
	CEO or CFO leaves		Administrative comments
	Malpractice, legal, or accounting issues		Taxes and rules on CEO bonuses
	Firm added to index		Credit worthiness
	Firm market value		Stimulus plan
	Dividends		Bailout
	Mergers and acquisitions		Nationalization of banks or healthcare
	Book-to-bill ratio		Budget surplus
	Firm layoffs or labor strike		Budget deficit
	Stock split		Political event or election
	Share buyback		Political conflicts, instability, or corruption
	Large stake in firm		Armed conflicts or nuclear testing
	IPOs		FDIC/SEC restructuring; regulations stress tests
	Business spending or investment		Treasury secretary leaves
Central bank	Monetary policy	Consumption	Consumer spending or demand
	Minutes or comments		Consumer confidence
	Bailouts		
Terrorism	General terrorism or attacks	Financial/credit markets	Financial markets or sector
			Weakness in credit markets
			Credit ratings
			Lack of capital funding
			Credit card defaults
			Restructuring or regulation
ROW	All of the above factors as they pertain to rest of world		

Figure 2: Psychological Factors Influencing Daily Stock Prices

Optimism	Concern
Pessimism	Euphoria
Confidence	Crowd psychology
Sentiment	Exuberance
Greed	Worry
Fear	

Figure 3: Technical Factors Influencing Daily Stock Prices

Non-momentum	Momentum
Profit taking	Market rally
Firm added to index	Market momentum
Holiday effect	Momentum traders
January effect	Bandwagon
End-of-month effect	Price-to-price loop
End-of-quarter effect	Moving average
Friday effect	Chartism
End of the year effect	
Giving-back effect	
Triple witching	
Santa Claus effect	

Figures 1, 2, and 3 are extracted from *Beyond Mechanical Markets*.[22]

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[22] Frydman, R., & Goldberg, M. D. (2011). *Beyond Mechanical Markets: Asset Price Swings, Risk, and the Role of the State*. Princeton, NJ: Princeton University Press.

Figure 4: Factor Frequency in Bloomberg Wrap Reports Published Between June 1, 2019 and December 31, 2019

Stock Indices	
Dow	47%
S&P 500	93%
NASDAQ	47%
Fundamentals, Psychology, or Technical Factors	
Fundamentals with International Trade	55%
Fundamentals with Interest Rates	24%
Fundamentals with Macroeconomic Activity	22%
Fundamentals with Dividends or Earnings	16%
Fundamentals with Central Bank Communication	12%
Fundamentals with the Rest of the World	10%
Fundamentals with Government or Fiscal	6%
Fundamentals with Company Variables	4%
Psychology with Macroeconomic Activity	4%
Fundamentals with Currency Markets	3%
Fundamentals with Inflation Rates	2%
Technical Momentum Trading	2%
Psychology with Central Bank	1%
Psychology with Interest Rates	1%
Psychology with International Trade	1%
Pure Psychology	1%
Fundamentals with Benchmark Valuation	-
Fundamentals with Financial Institutions	-
Fundamentals with Geopolitical Issues	-
Fundamentals with Housing	-
Fundamentals with Oil	-
Fundamentals with Sales	-
Psychology with Benchmark Valuation	-
Psychology with Company Variables	-
Psychology with Currency Markets	-
Psychology with Dividends or Earnings	-
Psychology with Financial Institutions	-
Psychology with Geopolitical Issues	-
Psychology with Government or Fiscal	-
Psychology with Housing	-
Psychology with Inflation Rates	-
Psychology with Oil	-
Psychology with the Rest of the World	-
Psychology with Sales	-
Technical Non-Momentum Trading	-

Figure 5: Factor Frequency in Bloomberg Wrap Reports Published Between January 4, 1993 and December 31, 2009

Factor	Factor frequency (%)
Fundamentals	99
Earnings	65
Psychological considerations	55
Psychology with fundamentals	54
Economy	47
Interest rates	38
Sales	23
Company variables	23
Inflation	20
Oil prices	19
ROW	14
Gap/valuation	12
Government	12
Consumption	12
Central bank	11
Housing	8
Technical trading	6
Currency markets	6
Financial or credit markets	6
Uncertainty	6
Technical non-momentum	5
Bubble considerations	3
Technical momentum	2
Terrorism	2
Trade	1
Pure psychology	1

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